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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,635	06/20/2006	Rafael Shapiro	BA9327 US PCT	3586
23906 7590 12/31/2009 E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1122B 4417 LANCASTER PIKE WILMINGTON, DE 19805				
EXAMINER ROBINSON, BINTA M				
ART UNIT		PAPER NUMBER		
1625				
NOTIFICATION DATE		DELIVERY MODE		
12/31/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary

Application No.

10/583,635

Applicant(s)

SHAPIRO, RAFAEL

Examiner

BINTA M. ROBINSON

Art Unit

1625

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Applicant's arguments filed 10/1/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 10/1/09

1. **Detailed Action**

2. The 103 (a) rejection over Bay in view of Fessenden is rendered moot in light of applicant's arguments filed 10/1/09.

3. **(modified rejections)**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et. al. as applied to claims 1-27 above, and further in view of Bay et. al and Fessenden.

Maurer et. al. teaches the process for the preparation of 2-chloropyridines of the formula



wherein R1 is hydrogen and R2 is a halogen atom of chlorine from the respective 2-aminopyridines, in which the reaction took place in an organic solvent of a methanolic solution saturated with hydrogen chloride with alkyl nitrites, using the Sandmeyer reaction. See pages 2 and 3. Page 2 of the prior art, states that it is a known fact that halogen derivatives can be obtained from amino compounds using aromatics with the aid of the Sandmeyer reaction. The Sandmeyer reaction is a chemical reaction used to synthesize aryl halides from aryl diazonium salts. An aromatic amine reacts with a nitrite to form an aryl diazonium salt. The diazonium

group is readily displaced as N_2 by halide ions such as Cl^- . For the substitution of Cl^- or another halide, a copper (I) salt is used as the source of the nucleophile. (The Cu^+ ion acts as a catalyst in these reactions. See pages 508-509 of Fessenden. Bay et. al. teaches that the Sandmeyer reaction is normally used to achieve the regiospecific chlorination of aromatic rings. See page 2858 of Bay et. al. . The difference between the prior art process and the instantly claimed process, is the specification of the amount of copper in the copper (II) oxidation state that is present in the copper catalyst as at least 50% in the instant claims and specification of other reaction conditions such as the mole ratio of nitrite salt to the 3-amino-2-chloropyridine, temperature range in the instant process but not the prior art process and the fact that 2,3-chloropyridines rather than 2-chloropyridines are being produced via the Sandmeyer reaction. Bay teaches that a number of variations of the Sandmeyer reaction are known. See page 2858. It would have been obvious for one of ordinary skill in the art to optimize the prior art process in terms of specific reaction conditions and use the Sandmeyer reaction, which is a well known synthetic process in the prior art for halogenation of aryl groups, to halogenate a 3-amino-2-chloro-pyridyl compound into a 2, 3-dichloropyridine compound. Accordingly, the claims are rendered obvious by the prior art process.

Response to applicant's remarks

The applicant traverses the above 103 (a) rejection over Maurer in further view of Bay et. al. and Fessenden. First, the applicant argues that Maurer et. al. does not disclose any examples in which a copper catalyst is used. However the first paragraph of page 2 of Maurer states that "it is a known fact that halogen derivatives can be

obtained from amino compounds using aromatics with the Sandmeyer reaction." The Sandmeyer reaction by definition uses copper catalysts, for the decomposition of the reaction intermediates into the desired products.

The applicants also claim that displacements at the 3-position of the pyridine are very difficult and is a nonobvious result, however, this observation was not claimed in the specification or anywhere in the patent application before response to the above rejection. Under 37 CFR 1.132, when any claim of an application or a patent under reexamination is rejected or objected to, any evidence submitted to traverse the rejection or objection on a basis not otherwise provided for must be by way of an oath or declaration under this section.

It is also well known in the art copper (I) or (II) catalysts can be used in Sandmeyer reactions. See the "Sandmeyer Reaction" in Wikipedia.

It would have been obvious for one of ordinary skill in the art to optimize the prior art process in terms of specific reaction conditions and use the Sandmeyer reaction, which is a well known synthetic process in the prior art for halogenation of aryl groups, to halogenate a 3-amino-2-chloro-pyridyl compound into a 2, 3-dichloropyridine compound. Accordingly, the claims are rendered obvious by the prior art process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binta M. Robinson whose telephone number is (571) 272-0692. The examiner can normally be reached on M-F (9:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-0670.

A facsimile center has been established. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier numbers for accessing the facsimile machine are (703)308-4242, (703)305-3592, and (703)305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

/Binta M Robinson/
Examiner, Art Unit 1625

/Janet L. Andres/
Supervisory Patent Examiner, Art Unit 1625